

What is claimed is:

1        1.        An open community model for exchanging information in a dynamic environment,  
2        said open community model comprising:

3                means for enabling suppliers, consumers, prosumers, potential suppliers, potential  
4        consumers, and potential prosumers to access said open community model via open platform  
5        data encoding standards;

6                a continually evolving world model;

7                means for enabling said suppliers, said potential suppliers, said prosumers, and said  
8        potential prosumers to supply timely information about themselves, about said dynamic  
9        environment, or a combination thereof to said world model;

10              means for updating and improving said world model based on said timely information;

11              means for generating integrated information based on said world model, said  
12        integrated information reflecting a continually evolving knowledge of said dynamic  
13        environment; and

14              means for enabling said consumers and said prosumers to receive and evaluate said  
15        integrated information.

1        2.        The open community model according to claim 1, further comprising:

2                means for publicizing a description of information types said world model receives  
3        and provides, wherein said suppliers, said potential suppliers, said prosumers, and said  
4        potential prosumers supply said timely information consistent with said description, and  
5        wherein said consumers, and said prosumers receive said integrated information encoded in a  
6        manner consistent with said description.

1        3.        The open community model according to claim 2, further comprising:

2                means for encoding said timely information and said integrated information in a  
3        structured syntax language conforming to said open platform data encoding standards and in  
4        accordance with said description of information types.

1        4.        The open community model according to claim 1, further comprising:

2 a plurality of sub-communities each associated with a continually evolving  
3 community-specific world model and each publicizes a community-specific description of  
4 information types.

1 5. The open community model according to claim 4, wherein  
2 each of said plurality of sub-communities is capable of encoding said timely  
3 information and said integrated information in a structured syntax language conforming to  
4 said open platform data encoding standards and in accordance with said community-specific  
5 description of information types.

1 6. The open community model according to claim 4, in which  
2 said plurality of sub-communities are distributed in a public accessible network having  
3 no centralized total information base for said world model.

1 7. The open community model according to claim 1, in which  
2 said open community model is implemented in a distributed computer system having  
3 no centralized total information base for said world model.

1 8. The open community model according to claim 1, in which  
2 said means for enabling said consumers and said prosumers to receive and evaluate  
3 said integrated information further enables said consumers and said prosumers to provide  
4 feedback on said integrated information to said world model.

1 9. The open community model according to claim 8, in which  
2 said feedback relates to quality of information received, value of information received,  
3 kind of information desired, or a combination thereof.

1 10. The open community model according to claim 9, in which  
2 said quality relates to timeliness, accuracy, error rates, or reliability.

- 1 11. The open community model according to claim 8, further comprising:  
2 means for allowing said suppliers, said potential suppliers, and said prosumers to  
3 dispute said feedback; and  
4 means for allowing said consumers and said prosumers to justify said feedback.
- 1 12. The open community model according to claim 1, said means for optimizing said  
2 world model further comprising:  
3 means for generating model estimates; and  
4 means for adjusting said model estimates based on said timely information.
- 1 13. The open community model according to claim 1, said means for optimizing said  
2 world model further comprising:  
3 means for identifying model discrepancies, wherein said world model is capable of  
4 adapting to reduce said discrepancies.
- 1 14. The open community model according to claim 1, further comprising:  
2 means for assessing quality of said timely information, wherein said timely  
3 information is admitted or rejected by said world model based on assessment results; and  
4 means for providing said assessment results to said suppliers, said potential suppliers,  
5 said prosumers, and said potential prosumers.
- 1 15. The open community model according to claim 14, further comprising:  
2 means for causing differential payments to said suppliers and said prosumers.
- 1 16. The open community model according to claim 15, further comprising:  
2 means for determining differential payments based on said assessment results.
- 1 17. The open community model according to claim 14, in which  
2 said means for enabling said consumers and said prosumers to receive and evaluate  
3 said timely information further enables said consumers and said prosumers to provide  
4 feedback on said timely information to said world model, further comprising:

5 means for determining a price of said timely information based at least in part on said  
6 assessment results and said feedback.

1 18. The open community model according to claim 14, in which  
2 said quality relates to timeliness, accuracy, error rates, or reliability of said  
3 timely information.

1 19. The open community model according to claim 14, further comprising:  
2 means for rating said suppliers and said prosumers based on said assessment results.

1 20. The open community model according to claim 14, further comprising:  
2 means for rating said consumers and said prosumers based on factors including credit  
3 or payment history, magnitude of payments, and precision of information requirements.

1 21. The open community model according to claim 14, further comprising:  
2 means for allowing said suppliers, said potential suppliers, said prosumers, and said  
3 potential prosumers to dispute said assessment results, wherein said open community model is  
4 capable of responsively communicating a justification of said assessment results to said  
5 suppliers, said potential suppliers, said prosumers, and said potential prosumers.

1 22. The open community model according to claim 1, further comprising:  
2 an information base representing said integrated information utilized by said means for  
3 updating and improving said world model which comprises world model update and query  
4 processing application services.

1 23. The open community model according to claim 1, further comprising:  
2 means for allowing members of said open community to specify, change, or augment  
3 categories of information that they supply, receive, or utilize.

- 1    24.    The open community model according to claim 1, further comprising:  
2            means for enabling said consumers and said prosumers to offer a bid for desired  
3    information.
- 1    25.    The open community model according to claim 1, further comprising:  
2            means for enabling said consumers and said prosumers to communicate a plan,  
3    elements of said plan, and a list of information requirements derived from or material to said  
4    plan, said requirements including quality, value, cost, or a combination thereof and said  
5    quality relates to timeliness, accuracy, error rates, or reliability of said integrated information.
- 1    26.    The open community model according to claim 25, further comprising:  
2            means for modifying said information requirements in response to changes pertaining  
3    to said dynamic environment or to said plan.
- 1    27.    The open community model according to claim 1, further comprising:  
2            means for allocating responsibility for supplying a particular kind of information to a  
3    supplier; and  
4            means for monitoring said supplier's performance and quality of said particular kind  
5    of information.
- 1    28.    The open community model according to claim 27, further comprising:  
2            means for determining differential payments to said supplier based on results of said  
3    monitoring.
- 1    29.    The open community model according to claim 1, in which  
2            said timely information and said integrated information relate to traffic flow rates  
3    along a planned route in said dynamic environment.
- 1    30.    The open community model according to claim 29, in which  
2            said traffic is characterized as air traffic, ground traffic, or digital traffic.

- 1 31. The open community model according to claim 1, in which  
2 said timely information and said integrated information relate to visibility along a  
3 planned route in said dynamic environment.
- 1 32. The open community model according to claim 1, in which  
2 said timely information and said integrated information relate to icing along a planned  
3 route in said dynamic environment.
- 1 33. The open community model according to claim 1, in which  
2 said timely information and said integrated information relate to impediments to traffic  
3 flow along a planned route in said dynamic environment.
- 1 34. The open community model according to claim 1, in which  
2 said timely information and said integrated information relate to risks involved along a  
3 planned path in said dynamic environment.
- 1 35. The open community model according to claim 1, in which  
2 said timely information and said integrated information relate to opportunities  
3 involved along a planned path in said dynamic environment.
- 1 36. The open community model according to claim 1, in which  
2 said timely information and said integrated information relate to resource availability  
3 or unavailability in said dynamic environment.
- 1 37. The open community model according to claim 1, in which  
2 said timely information comprises forecast future values or attributes of entities of  
3 interest related to a planned course of action in said dynamic environment.
- 1 38. The open community model according to claim 1, in which  
2 said integrated information comprises forecast future values or attributes of entities of  
3 interest related to a planned course of action in said dynamic environment.

1 39. The open community model according to claim 1, in which  
2 said open community model is implemented for traffic management including airborne  
3 traffic management and ground-based traffic management.

1 40. The open community model according to claim 1, in which  
2 said open community model is implemented for route planning including ground-  
3 based route planning and GPS-enabled route planning.

1 41. The open community model according to claim 1, in which  
2 said open community model is implemented for utility management including water  
3 management and power management.

1 42. The open community model according to claim 1, in which  
2 said open community model is implemented for resource management.

1 43. The open community model according to claim 1, in which  
2 said open community model is implemented for business process planning and  
3 optimization.

1 44. The open community model according to claim 1, in which  
2 said open community model is implemented for information system performance  
3 management.

1 45. The open community model according to claim 1, in which  
2 said open community model is implemented for a land-based GPS-enabled  
3 transportation grid.

1 46. The open community model according to claim 1, further comprising:  
2 a plurality of specialized intelligent objects proliferated in said dynamic environment  
3 for supporting members of said open community.

1 47. The open community model according to claim 1, in which  
2 some or all of said suppliers, said potential suppliers, said consumers, said potential  
3 consumers, said prosumers, and said potential prosumers are characterized as specialized  
4 intelligent objects.

1 48. The open community model according to claim 1, in which  
2 said open platform data encoding standards include World Wide Web Consortium  
3 conforming standards.

1 49. A method for implementing said open community model according to claim 1, said  
2 method comprising the steps of:

- 3 a) configuring said open community model in accordance with said open platform  
4 data encoding standards such that said suppliers, said consumers, said  
5 prosumers, said potential suppliers, said potential consumers, and said potential  
6 prosumers can readily access said open community;
- 7 b) configuring said world model such that said suppliers, said potential suppliers,  
8 said prosumers, and said potential prosumers can easily and dynamically  
9 supply said timely information to said world model, and said consumers and  
10 said prosumers can readily receive and evaluate said integrated information;
- 11 c) assessing said timely information and generating said integrated information;  
12 and
- 13 d) continually adapting and improving said world model with said timely  
14 information.

1 50. A computer apparatus comprising means for carrying out all the steps of claim 49.

1 51. An article of manufacture for implementing said open community model according to  
2 claim 49, wherein said article of manufacture comprising a computer readable medium  
3 carrying computer-executable instructions that when executed on a computer carry out all the  
4 steps of claim 49.